because the equipment necessary to provide the one would already have had to be in place to provide the other.[9]

- If total costs are to be recovered, in these circumstances, the common costs that constitute their preponderant bulk would have to be allocated among the several services provided by payphones, either in ways that have nothing to do with the economic efficiency that constitutes the entire purported point of the AT&T-proposed exercise; or, in the interest of second-best economic efficiency, on the basis of differences in elasticities of demand among the several services—clearly a litigious process subject to its own uncertainties.

- Such determinations are inevitably subject also to political influence, which tends to operate in the direction of holding rates for services such as these below economically efficient levels, with the consequence of tending to discourage the deployment of payphones, thereby conflicting both with efficient service and the statutory goal of "promot[ing] the widespread deployment of payphone services to the benefit of the general public...."[10]

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[9] Total-service long-run incremental cost (TSLRIC) is the cost of adding a service to a mix of other services or saved if it were entirely dropped. Proceeding from Faulhaber's definition of that cost ("Cross-Subsidization: Pricing in Public Enterprises," *The American Economic Review*, Vol. 65, December 1975, pp. 966-977)—where facilities are shared by two or more services, the incremental cost of service B is the difference between the cost of providing service A on a stand-alone basis and the cost of providing service A and B together—if the payphones are conceived of as providing two separate services—coin and non-coin calling—the TSLRIC of the second of these would be small, since any system set up to supply the other service would already have to incorporate most of the facilities for providing it; and the same would be true of the TSLRIC of coin calling, except for the coin-collection feature. On the latter, which alone is required for only one of these categories of calls but not the other, see Section IV., below.

[10] 47 U.S.C. § 276(b)(1).

- Regulatorily-prescribed, cost-based rates tend inherently to be based on cost averages, which in turn tend inevitably to obscure cost-justified differentials—for example, higher rates in remote and lightly-used locations—which efficiency requires be reflected in prices, in order to encourage the deployment of payphones in higher-cost locations. Those rate differentials would in competitive markets continue to be constrained by the relative ease of competitive entry.

IV. ADJUSTMENTS OF THE MARKET RATE FOR NON-COIN CALLS

Since the putatively competitively-determined cost-based market rate, upon which the FCC proposes to base the regulated rate for these non-coin services, has been established in the market for coin services, clearly the economically efficient as well as—by traditional regulatory standards—equitable treatment of the coin rate would be to adjust for any differences between the incremental costs of the two categories of services.

Since I have not myself undertaken a study of what those cost differences might be, I confine myself to commenting on the logic underlying the particular adjustments that the FCC has made and some objections to these posed by the several parties.

A. Costs peculiarly associated with coin calls

Since the major apparent difference between the costs associated with the coin- and non-coin calls are the ones associated with coin-collection—both the capital costs associated with their incorporation in the equipment, the maintenance peculiarly associated with that feature (including, prominently, costs associated with theft and tampering) and the operating costs of collecting the coins—the most important adjustment of the 35 cent market rate

proposed by the FCC, under instructions from the Circuit Court of Appeals, is to deduct the apparently avoidable costs associated with that feature. The logic of the adjustment is clear: in imperfectly or purely competitive markets, the prices of services supplied in common will differ by the differences in their several incremental costs.[11]

The major outstanding issue with respect to this adjustment is whether the FCC was correct in deducting the incremental capital costs of equipping the payphones with coin-collection capabilities.

The Coalition objects to the subtraction of all but the variable costs of coin collections on the ground that any and all payphones have been and will for the foreseeable future continue to be equipped with those capabilities: that, to put it another way, few if any payphones would be installed if not for coin calling; these capabilities are inherent and, so far as can be foreseen, inescapable characteristics of the facility.

If the facts are as they state them, their objection is justified. If, that is to say, the costs of payphones associated with coin collection capabilities would be altered neither more nor less if, *within the likely range*,[12] many more or many fewer non-coin calls were placed, the fixed

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[11] Observe, once again, that this generalization about the efficient pricing of common products applies—Dr. Warren Boulton's assertions notwithstanding—regardless of whether they are independent or substitutable for one another.

Where, because of the presence of economies of scale or scope, prices set only at incremental costs will produce inadequate total revenues, they will differ also in reflection of differences in the elasticity of their several demands. In the absence of a demonstrated justification for larger or smaller differentials, on demand elasticity grounds, the economic and regulatory presumption would be in favor of price differentials equal to differences in incremental costs, in which situation the several common services would make the same contribution per unit to the recovery of common costs.

[12] Manifestly, if the number of coin calls were to decline sufficiently drastically and/or of non-coin to increase correspondingly drastically, different kinds of payphones, with differing cost characteristics, might well be installed. But the relevant question, from the standpoint of efficient price, is not a purely hypothetical one: it is how costs will or would *in fact* change if the proportions of the two kinds of calls were to change within the

costs associated with the coin-collection mechanism are neither more nor less avoidable costs of coin than of non-coin calls. Since they are, therefore, not in fact truly incremental or avoidable costs of non-coin calls, no economic purpose is served by differentiating the charges for the two categories of calls on this account.

Since the foregoing reasoning may be counterintuitive—may, indeed, strike one as unjust (how can it be fair to charge the people who assume responsibility for non-coin calls the fixed costs associated with the coin-collection mechanism?), it may be useful to remind ourselves of the economic purpose of prices reflecting and incorporating avoidable costs. It is to require buyers to decide whether the incremental costs to society of their demanding more of the service in question—or the costs that society would avoid if they ceased to demand it, either entirely or in smaller decrements—are equaled or exceeded by the satisfaction they derive from those purchases. This logic extends to capital costs as well as operating costs, of course: to the extent that incremental usage of the payphones increases the need—or increasing usage brings closer the day of need—for replacement or for additional payphone capacity, imposing those capital costs on users serves the familiar purpose of economic efficiency, requiring them to weigh against the additional benefits they receive for placing those calls the cost that society will actually incur maintaining and expanding that capacity. In the present context, the pertinent question is whether the incremental capacity costs imposed by coin usage differ from the incremental costs imposed by usage for non-coin calls; and here, if its factual premise is correct, it would appear the reasoning of the Coalition is correct and that of the FCC incorrect. If—*within any realistic range* (observe, once again, the essential factual component of the

realistically relevant range. That is why the foregoing exposition begins with the qualification, "If the facts are

exercise)—the same kind of payphones, with the same capital costs, would be or would not be installed regardless of whether the additional calls placed or not placed were coin or non-coin, then no economic purpose is served by charging different prices for the two on this account. Conceivably if the increments in demand over time were exclusively or preponderantly for non-coin calls, replacements or expansions in their numbers might take the form of payphones lacking the coin-collecting capabilities. But so long as the realistic assessment is that the additional capacity will be provided in the form of the traditional payphone, with coin collecting capability, the causal responsibility of coin- and non-coin calls for society incurring those costs will be identical: they will be the capital costs of payphones with that capability.

To the extent that there are or would be operating costs—costs of maintaining the coin mechanism and collecting the coins—that would actually vary with coin but not non-coin usage, it would indeed be inefficient (as well as inequitable) to impose them on placers of non-coin calls. I observe that the FCC does indeed adjust the 35 cent market rate downward in setting the default rates at issue in this proceeding to exclude those costs; and the Coalition does not object.[13]

The proposition that users of a common facility who do not need one costly feature of the service it provides be required to pay the same price as other users who do require that

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as they state them."

[13] By the same logic as we have expounded with respect to capital costs, however, unless it can be argued that the susceptibility of payphones to tampering, breaking and entering in order to get at the cash will *vary* depending upon the proportion of cash and non-cash calls, there is no *economic* basis for excluding non-coin calls from sharing in those costs, however unfair it might seem: those costs will vary with the number of payphones, which will vary in turn with the number of calls, coin and non-coin alike.

feature may well strike a non-economist as in some sense unfair. That kind of reasoning might suggest, instead, some method of allocating the common costs among the different categories of users in proportion to the separate costs of serving them severally with facilities uniquely suited to the demands of each. This was the essence of the "alternative justifiable expenditures" method devised by the Tennessee Valley Authority for allocating the common costs of multi-purpose river development projects among the several services supplied—electric power, navigation, flood control—

> in proportion to what it *would* have cost to provide each of those services in the same quantity in single-purpose projects set up exclusively for them,

as I described it roughly in my *The Economics of Regulation.*[14]

As I pointed out in so describing that method, however, the similar, so-called "relative cost method" for allocating the cost of producing natural gas and oil and various natural gas liquids in common in order to ascertain a "just and reasonable" field price for the natural gas:

> while it might be deemed to provide a just or a fair distribution of the joint costs, it did not provide an economic measure of the separate costs.[15]

In purely economic terms—in terms, that is, of marginal causal responsibility—there is no difference between coin- and non-coin calls in their respective responsibilities at the margin for society's incurring these capital costs—if, to repeat, the Coalition's factual premise is sound.

William Shew and I confronted the identical problem many years ago, in posing the question:

> Why should the humble POTS customer be required to pay a price set at marginal costs that have been elevated by the demand for such exotic services as

[14] New York: John Wiley & Sons, 1970, 1971, reprinted MIT Press, 1988, Vol. 1, p. 151.

[15] *Ibid.*, Vol. 1, p. 151, note 67.

> actually *using* the telephone to place or receive calls, local or long-distance, or to make possible high speed data transmission? Why not reflect the asserted differences in the costs of designing access systems suitable respectively for local calling, long-distance calling, and more sophisticated services in correspondingly differing flat monthly charges to customers depending on the kind of service to which they wish to subscribe?

Our answer was:

> Competitive markets have the virtue of offering consumers a variety of price and quality options, but that spectrum of offerings is not unlimited. It is not economically feasible to provide all conceivable packages. For example, there may be some automobile buyers who would prefer to buy cars without bumpers or fenders, at a correspondingly reduced price; but in view of the economies of producing standardized models, it probably would actually be more costly to satisfy their idiosyncratic desires than to supply them with the models preferred by the great majority of customers. In that event, they have no legitimate complaint about not having available to them, at a lower price, a stripped-down version that would have to be custom-made. ...
>
> Similarly, it may well be infeasible to supply the minority of subscribers who have no desire to be connected to the interexchange network, *either* to place or to receive long-distance calls, with the limited service they want except at costs that they themselves would regard as excessive. The system may therefore have to be designed with the facilities and quality of service that maximize the net benefits to all subscribers collectively....
>
> The kind of telephone network that we have, in short, inevitably represents a *collective consumption decision.* Because it would probably have been impractical for telephone companies to offer two or more systems, of varying capability, it became necessary to decide, *in effect* collectively, which quality offered the largest differential between benefits and costs to all subscribers together.[16]

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[16] Alfred E. Kahn and William B. Shew, "Current Issues in Telecommunications Regulation: Pricing," *Yale Journal on Regulation*, Vol. 4, No. 2, Spring 1987, pp. 229-31.

Similarly, we rejected claims that "the telephone companies are attempting illegitimately to load on to POTS customers a portion of the costs of upgrading their non-traffic-sensitive access networks in order to offer various sophisticated services. The first question is *whether those investments are economically efficient*, minimizing the combined costs of access, calling, and the newer services....If the expenditures are efficient—that is, if they conduce to the efficient design of the entire system—then the marginal costs of the several services at which their prices should be set are their marginal costs under that system. Specifically, if the efficient system entails a higher proportion of NTS subscriber plant costs than some other design, the economically first-best flat rates to POTS customers will reflect those higher costs: The marginal costs of access are what they are in the system that is optimally designed to satisfy all demands it serves." *Ibid.*, p. 228.

The identical economic reasoning would seem clearly to apply to coin- and non-coin calls: no economic purpose is served by deducting from the charges providers of payphone receive from the placing of non-coin calls costs that would not be avoided if they reduced the amount of their calling—costs society will indeed incur as the volume of those calls grows, regardless of the way in which those incremental volumes will *in fact* be distributed between those two categories of calls.

B. The issue of rounding

One basis for the objection of the long-distance carriers to the Commission's basing the rates for non-coin services on the market rate for coin calls is that it fails to take into account the fact that

> rates for...[the latter] calls must be rounded to the nearest nickel or dime. Thus, for example, even if the local coin market otherwise functioned perfectly...if the rate at which that market would come to rest is 33 cents, PSPs will not charge 33 cents; they will round, presumably to a 35 cent rate.[17]

The fatal inadequacy of their argument is that they offer no basis for their obvious supposition that the necessary rounding would, typically or on average, be upward rather than downward. If the market for coin calls were effectively competitive, the roundings upward would be balanced or offset, systematically, by the roundings downward. Prices would move by 5 cent intervals; but if the roundings were asymmetrically upward, as the objections implicitly assume, the incumbent firms would earn supernormal profits, which entry would undermine—with users of the service benefiting from a combination of restraint on the charges

[17] MCI et al., *Certificate, op. cit.*, p. 18.

and improved convenience consequent on the wider deployment of pay phones, which it was one purpose of the Telecommunications Act to encourage.

C. The absence of incentive of an 800 caller to shop around

The objection has also been raised that, in contrast with coin calls, the placer of 800 calls has no incentive to shop around—that is, to avoid payphones with above-average coin charges, upon which the 800 charges would under the FCC rules be based; and the party that pays is not able to reject calls from higher-charging payphones.

This objection misses the critical justification of the FCC's plan—namely, that it anchors the 800 rate to the coin charge, which it finds is and would be effectively constrained by competition—among other reasons, because individuals placing the latter calls have every incentive to avoid higher-charging phones. For reasons that I have already suggested (Section II., above), the finding of effective competitive constraints applies necessarily not just to the *average* level of coin charges but to any differentials among different payphones.

Finally, there are two answers to the contention that the subscriber to 800 service, who pays the bill, cannot refuse to accept calls from particular, higher-charging payphones.

First, the FCC has prescribed the uniform nation-wide default rate during the initial two-year phase-in period, the justification for which I have already spelled out.

Second, I am informed that targeted call-blocking, already technically feasible for the vast majority of payphones, will be virtually universally available by the end of the phase-in period. This technological fix eliminates the factual premise of this particular objection: able to block incoming calls from higher-charging payphones, the 800 subscriber will be in a position to deny them and therefore to negotiate a more acceptable charge.

I hereby swear and affirm that the statements contained in the attached Declaration are true and correct to the best of my knowledge and belief.

Alfred E. Kahn

Subscribed and sworn before me this 6th day of July 1998.

Notary Public

My commission expires 6/30/2000.

DELORES S HARING
Notary Public, State of New York
No. 4766345
Qualified in Tompkins County
Commission Expires June 30, 19 2000

DECLARATION OF PROFESSOR JERRY A. HAUSMAN

I, Jerry A. Hausman, do hereby declare as follows:

I am MacDonald Professor of Economics at the Massachusetts Institute of Technology in Cambridge, Massachusetts, 02139. I submitted previous declarations in the Remand phase of this proceeding, dated August 25, 1997 and November 15, 1997. In this declaration I consider certain issues raised by the D.C. Circuit's decision in MCI Telecomm. Corp. v. FCC, No. 97-1675 (May 15, 1998) and in the Commission's Public Notice dated June 19, 1998.

I. Summary and Conclusions

1. Price equals average cost in a competitive market. Economically efficient competitive markets base price on a markup over marginal or variable cost. The markup exists to cover the fixed costs of production. In a market situation with fixed costs and no barriers to entry, competition among similar firms will proceed to the point where the markup term is just high enough to cover the firms' fixed costs including a normal risk adjusted return to capital. No above-normal profit above this amount will exist, because if the price is so high as to lead to a above-normal profit, sufficient new entry will cause the price to decrease and the return to decrease to normal levels. Thus, in a competitive market the price will equal the sum of average variable costs and average fixed costs.

2. Local coin call prices are competitive and determined by the market outcome. Thus, the price charged for local coin calls is based on the cost of providing local coin calls. The Commission's decision to base the regulated per-call compensation rate for dial-around and subscriber 800 calls on the competitively determined local coin call price, adjusted for avoided costs, leads to an economically efficient outcome. So long as the Commission uses

the net avoided cost for marginal payphones, the economically efficient supply of payphones will be the result.

3. The avoided cost approach has important advantages over other methods used to set regulated prices. An avoided cost approach -- since it is based on the competitively determined coin call price which is in turn based on the cost of providing coin calls -- takes different costs and volumes of calls in different locations into account. By contrast, an average cost approach would result in the elimination of marginal payphones with below average volumes or above average costs. An average cost approach will thus lead to too few payphones. If an average TSLRIC calculation were done, marginal payphones would again be removed. Only if TSLRIC calculations were done for each individual payphone so that the regulated rate could be set for each payphone depending on specific volume and cost information, would a TSLRIC approach be valid. However, the administrative burdens of regulation here would be so large as to make this approach impractical. Furthermore, the rates would need to be constantly revised as economic conditions changed (e.g., increased use of mobile phones leading to decreased use of payphones). Either an average cost approach or a TSLRIC approach suffers from the well-known problems of rate-of-return, cost-based regulation, which creates perverse incentives in terms of economic efficiency.

4. The avoided cost approach is superior to a "bottoms-up" calculation. The bottoms-up calculation is essentially a cost-based estimate for marginal payphone locations. While a bottoms-up calculation may provide a way to check the "reasonableness" of competitive market outcomes, the market-determined price of local coin calls provides a superior basis to set the regulated rates for dial-around and subscriber 800 calls.

5. In previous declarations, I have explained that the Commission can reflect competitive market outcomes most accurately by taking account of demand conditions in setting the regulated rate for dial-around and subscriber 800 calls. See Hausman Declaration dated Aug. 25, 1997, attached to RBOC/GTE/SNET Payphone Coalition Comments (filed

Aug. 27, 1997) ("Aug. 27 Decl.") and Hausman Declaration dated Nov. 25, 1997, attached to RBOC/GTE/SNET Petition for Review (filed Dec. 1, 1997) ("Dec. 1 Decl."). An avoided cost approach, however, is an acceptable method of deriving an economically efficient outcome to the extent that demand conditions are not taken into account.

II. An Avoided Cost Approach, Based on the Local Coin Rate, Leads to an Economically Efficient Outcome

A. The Avoided Cost Approach Bases Rates On Marginal Or Average Variable Cost Plus a Markup to Cover Fixed Costs

6. Economically efficient competitive markets base price on a markup over marginal or average variable cost. In the rare case of a perfectly competitive market with no significant fixed costs, the markup over marginal or variable cost is zero since price equals marginal cost which, in turn, equals average variable cost. In the far more common case of imperfect competition where significant fixed costs exist, the markup exists to cover the fixed costs.[1] Thus, the price in an imperfectly competitive market can be decomposed into two parts by the following equation:

$$\text{Price} = \text{marginal cost} + \text{markup to cover fixed cost} \qquad (1)$$

The reason for this outcome is that in a competitive market (either perfectly or imperfectly competitive) with free entry, price equals average total cost. Since total cost can be decomposed into variable costs and fixed costs we have the following equation:

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[1] Perfectly competitive markets are quite rare in the U.S. economy, with imperfect competition existing in over 99% of real market situations.

Price = average total cost = average variable cost + average fixed cost = marginal cost + markup to cover fixed cost[2] (2)

The basic rule of economics is that in a competitive market price equals average cost with no above-normal (economic) profits being present. This outcome occurs because in a market with fixed costs and free entry, competition among similar firms will proceed to the point where the markup term is just high enough to cover the firms' fixed costs including a normal risk adjusted return to capital. No above-normal profit above this amount will exist, because if the price is so high as to lead to an above-normal profit sufficient new entry will cause the price, and hence the return, to decrease to normal levels.

7. Local coin call prices are competitive, as I discuss below, so that equations (1) and (2) hold in the market for local coin calls. In a regulated situation where the Commission decides to base the dial-around and subscriber 800 rates on the competitively determined local coin call price and thus on the cost of providing local coin calls, an avoided-cost-determined rate leads to an economically efficient outcome. In terms of equations (1) and (2) the avoided cost approach sets the regulated price as:

$$P_r = (MC - MAC) + \text{Markup to cover fixed costs} \quad (3)$$

where the term MAC stands for avoided costs for the marginal units of output. In terms of equation (3) the marginal cost of equation (1) now has subtracted off the (net) marginal avoided cost (MAC), so that the term (MC-MAC) is the marginal cost of the regulated service and the efficient pricing formula of equation (1) is extended to the regulated pricing situation

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[2] These relationships between price and marginal costs and average costs are described in introductory economics textbooks. See, e.g., P.A. Samuelson and W.D. Nordhaus, Economics, McGraw-Hill, 12th ed., 1985, ch. 22.

of equation (3).[3] Note that the term MAC contains positive terms that are costs for the competitive service but not for the regulated service and negative terms for additional costs created by the regulated service (e.g.,ANI costs). Thus, the MAC term is a net avoided cost amount that leads to the correct calculation of the marginal cost of the regulated service.

8. The avoided cost approach does not entail "subtracting apples from oranges" as the Circuit Court feared. See MCI v. FCC, slip op. at 5. In a competitive market, price is determined by cost as demonstrated by equations (1) and (2). The avoided cost technique adjusts the price of the regulated service to reflect the difference in costs between the two services. In a competitive market, as demonstrated by equation (2), a given difference in average cost will lead to the same difference in price (holding other factors equal). The avoided cost approach determines the difference in cost, and applies this difference to the competitively determined price of one service to set the regulated price of the other service. Indeed, the outcome is similar to what would occur in a competitive market where two services are provided using a single facility. The price of each of the two services is determined by their individual marginal costs plus a mark-up for each service to cover the fixed costs of the common facility.[4] Thus, on a per call basis, the facility will earn the same economic return from each service, so the regulated service will contribute the same amount per call to the fixed costs of the commonly used facility.

9. The avoided cost approach also satisfies a basic "fairness" criterion. The most efficient economic outcome would set price equal to marginal cost, but this outcome would

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[3] The economic efficiency result holds true so long as demand elasticity differences among the different services are not taken into account. In my previous declarations I discussed how using demand elasticity differences could lead to even greater economic efficiency.

[4] To the extent that a competitive outcome would vary the markups across the two services depending on their demand elasticities, I demonstrated in my two previous declarations that the mark-ups for dial around and 800 calls would exceed the mark-up for coin calls. Thus, not taking account of difference in demand elasticities leads to a lower regulated price than would occur in a competitive market.

require a subsidy to cover the fixed costs, as demonstrated by equation (1).[5] However, the Telecommunications Act of 1996 provides that all payphone subsidies contained in access charges and basic exchange rates must be eliminated. To cover the fixed and common costs across the competitive and regulated services, the avoided cost approach along with equations (1) and (3) demonstrate that each service pays an equal contribution, or equal "tax amount," to cover the fixed and common costs. The Commission has repeatedly recognized that most of the costs of a payphone such as the instrument, installation, and maintenance are fixed costs that are common to all types of calls. The avoided cost approach leads to callers who benefit from the placement of the payphone making an equal contribution, or being charged an equal tax, to cover the fixed and common costs. The outcome is "fair" since all users pay an equal contribution or tax to cover the fixed and common costs.

10. An avoided cost approach leads to a regulated price that is, if anything, conservative. In my previous declarations I demonstrated that a market situation would utilize demand elasticities to determine the markup for each service to cover the fixed and common costs in a competitive situation. The demand elasticity estimates from my previous declaration demonstrate that the derived demand elasticity for dial-around and subscriber 800 calls is significantly less than the elasticity of demand for coin calls. See Aug. 27 Decl., Dec. 1 Decl. Thus, if regulatory and legislative barriers did not exist, the market determined rate on dial-around and subscriber 800 calls would be significantly higher than the local coin rate. Using equation (2) and the avoided cost approach leads to a lower rate for dial-around and subscriber 800 calls than would be the competitive outcome.

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[5] The price-equals-marginal-cost outcome is called the "first best" outcome in economics. However, it has long been recognized that government (or other subsidies) would be required to satisfy the first best outcome. Otherwise, if price were set equal to marginal cost, regulated companies would go bankrupt because they would not cover their fixed costs.

B. Advantages of an Avoided Cost Approach over Alternative Cost Based Approaches

11. The avoided cost approach has important advantages over other methods used to set regulated prices. An avoided cost approach, since it is based on the competitively determined coin call price, takes different costs and volumes of calls in different regions into account. By taking cost differences into account, according to equation (1), the economically efficient outcome is achieved. By contrast, an average cost approach would result in the elimination of marginal payphones with below average volumes or above average costs. Thus, an average cost approach will lead to too few payphones, as I discussed in my first declaration. Aug. 27 Decl. ¶¶ 36-38.

12. Similarly, if an average TSLRIC calculation were done, marginal payphones would again be removed as I discussed in my previous declaration. Aug. 27 Decl. ¶¶ 39-41. Only if TSLRIC calculations were done for each individual payphone so that the regulated rate could be set for each payphone depending on specific volume and cost information, would a TSLRIC approach be valid. However, the administrative burdens of regulation here would be so large as to make this approach impractical. Furthermore, the rates would need to be constantly revised as economic conditions changed (e.g., increased use of mobile phones leading to decreased use of payphones). Use of a market-determined competitive price as the basis for the regulated rate is a much better approach, because the market adjusts to changing economic conditions without any need for external intervention.

13. Both an average cost approach and a TSLRIC approach suffer from the well-known problems of rate of return (ROR), cost-based, regulation. ROR regulation is well known to create perverse incentives in terms of economic efficiency. A company regulated under ROR regulation has a limited incentive to be cost efficient because the company does not

receive additional profit from decreasing its costs.[6] Use of ROR regulation in the presence of competition gives rise to other uncertainties as well: Should average costs be used; minimum costs across providers; or perhaps the maximum cost? Each choice leads to an inefficient outcome.

14. A market-based rate leads to economically efficient deployment of payphones. The use of avoided cost pricing means that marginal payphones will not be eliminated so that an efficient supply of payphones will result (except to the extent that demand elasticities are not accounted for). Congress intended an efficient supply of payphones without cross subsidy to be the outcome of competition; this approach to regulated rate setting will come the closest to a competitive outcome. Coin call customers and non-coin customers will choose to make calls without their choices being distorted by incorrect regulatory signals. Thus, the different call types will each contribute equally to joint and common costs, resulting in a productively efficient outcome.[7] The PSP is then indifferent between different call types so that no perverse economic incentives arise for the PSP to favor any given type of call.

15. Use of the competitively determined local coin rate as the starting point for the avoided cost calculation is a proper economic approach because market forces will determine the price of marginal payphones. Note further that since the local coin rate is the lowest priced call offered in the market, with the lowest contribution to the fixed and common costs of the payphone, basing the avoided cost on the local coin rate is conservative. Use of other call types in an average price together with local coin calls would lead to a higher avoided cost estimate for the regulated default rate. For example, the commissions that operator service

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[6] The existence of "regulatory lag", where prices are not adjusted at the same time costs change, attenuates this effect to some extent. However, experience in the telephone industry has demonstrated that the shift from ROR, cost-based regulation, to incentive or price-based regulation has led to significant cost reductions by regulated companies.

[7] This type of production efficiency rationale is used to establish pricing rules for wholesale services under the Telecommunications Act of 1996. See 47 U.S.C. 252(d)(3).

providers pay to PSPs for access to callers' 0+ traffic -- known as 0+ commissions -- are as much as three to four times higher per call than the local coin rate. 0+ commissions provide an excellent market surrogate for dial-around traffic because of the similarity of 0+ calls and dial-around calls, both of which are long distance credit card calls. Had the Commission properly accounted for this market evidence it would have set a default rate at a higher level.

16. Given this economic analysis, an avoided cost approach such as the Commission has adopted is superior to average-cost or TSLRIC-based approaches recommended by AT&T and MCI. Avoided cost pricing will lead to a more efficient supply and wider availability of payphones as Congress intended. Only a demand elasticity based approach is more efficient than an avoided cost approach.[8] Basing the regulated rate on a competitively determined price allows the market to determine the supply of payphones, which is consistent with a competitive outcome.

17. The avoided cost approach is superior to a "bottoms-up" calculation, such as the Commission employed as a "reasonableness check" in the Second Report and Order. The bottoms-up calculation is essentially a cost-based estimate for marginal payphone locations. While a bottoms-up calculation may provide a reasonable check on competitive market outcomes, the market determined price of local coin calls provides a superior basis to set the regulated rates for dial-around and subscriber 800 calls. A market determined rate takes account of all relevant cost conditions -- as equation (2) demonstrates -- and of the interaction of cost conditions with demand. The actions of the many PSPs and consumers of payphone services in the market will give rise to the competitively determined rate. A bottoms-up cost calculation, by its very nature, cannot incorporate all of this market information in a single calculation. Economists have emphasized the problems of regulatory cost calculations under situations of limited information. The Commission should not depend on the limited

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[8] The avoided cost approach would be similar to the demand based approach if the demand elasticities among call types were similar.

information of a bottoms-up calculation compared to the "full-information" outcome of a competitive market.

III. Application of the Avoided Cost Approach in the Current Situation

18. The outcome of a competitive market is given by equations (1) and (2) where the price is determined by marginal cost plus a markup to cover fixed costs and equals the average total cost of supply. Where regulation sets prices but attempts to adjust the marginal or variable cost to reflect cost differences, avoided cost leads to the correct result. Three conditions must be met to permit application of the avoided cost approach to a competitive benchmark outcome: (1) the price of one service is set by competition, (2) the differences in marginal or variable cost between the competitive service and the regulated service can be estimated, and (3) a single facility provides both services so that the same markup can be applied to the fixed costs.[9]

A. The Local Coin Rate is Set By Competition

19. The payphone market is competitive and characterized by free entry. Indeed, the Commission has previously stated that payphone markets should operate in a competitive manner. See First Report and Order, ¶ 11; Order on Reconsideration, ¶ 68. No significant barriers to entry or expansion exist.[10] A number of PSPs exist that operate nationwide or in each region of the U.S., such as the LECs. Thus, in terms of equation (2), price of payphone services will equal average cost with returns to investment bid down to competitive levels by competing PSPs. Fixed costs will be covered (including a normal return to investment), but

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[9] An avoided cost approach can also be applied when the benchmark price is a regulated price, instead of a competitive price. However, the necessary assumption for economic efficiency then becomes that the regulated price is set in an economically efficient manner.

[10] No significant barriers to exit exist. The investment in payphones is not sunk since a well-functioning second hand market for payphones exists.

no above-normal profits will be present. While payphone markets are not perfectly competitive, because of the significant fixed costs of the facility, the outcome is "effectively" competitive in the sense that no PSP is able to exercise significant market power.

20. Market experience to date demonstrates the competitiveness of payphone markets. Competition among PSPs is high with no market evidence that PSPs are exercising significant market power. Thus, the prevailing local coin rate is determined in a competitive market. Indeed, the local coin rate has been deregulated for years in a number of states, and no evidence of exercise of significant market power has been put forward in these proceedings. Furthermore, the local coin rate in the remaining states has now been deregulated for almost a year, and it is my understanding that no state has invoked the regulatory procedure that would cause the Commission to investigate the possible exercise of monopoly power. As the Commission has correctly concluded, the market for local coin payphone service is competitive. Thus, the price of local coin calls is determined by the cost of such calls.

21. LECs do not operate as dominant firms exercising significant market power. Instead local coin prices result from the outcome of a competitive process where independent PSPs compete with LECs. For instance Davel Communications Group is the largest independent PSP with approximately 80,000 installed payphones.[11] This installed base of payphones is approximately equal to the scale of an RBOC and is significantly larger than the scale of non-RBOC LECs. Davel has grown rapidly, partly through acquisitions, and has gone from approximately 20,000 to 80,000 payphones over the last year with first quarter revenues up 81% compared to 1997. Davel now operates payphones in over 40 states. Davel demonstrates the non-existence of barriers to entry or expansion, which leads to a competitive

[11] This number of payphones includes payphones from the recently announced acquisition of PhoneTel Technologies.

outcome as recognized by economic and antitrust analysis.[12] Overall, I estimate that the LECs operate about 70% of payphones with the number of non-LEC locations growing significantly faster than the number of LEC locations.[13] Payphone calls are a (relatively) non-differentiated product so that entry and expansion by non-LEC PSPs will continue to lead to a competitive outcome in payphone markets.

22. Claims have been made that in certain locations where no ready substitute for a payphone is available and demand is relatively inelastic, a PSP may be able to earn above-normal profits from the "locational monopoly" characteristic of the situation. Relatively few locations are likely to be plausible candidates for such location monopolies; commenters have typically cited airports and highway truck stops.[14] However, because of the many PSPs that competitively supply payphones, the owner of the location can negotiate with PSPs and determine the price of local coin calls at the particular location. If the airport authority or truck stop owner wants to set the local coin rate at the prevailing competitive rate, it will have the ability to do so. Because of customer reactions, it is likely that local coin rates in these locations will be set at the prevailing competitive rate. Note that the situation is similar to a fast food restaurant at an airport since the price of a hamburger could be set to reflect the "locational monopoly". In practice, airport authorities do not permit their fast food tenants to

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[12] See e.g. the DOJ and FTC Horizontal Merger Guidelines, April 1992, para. 2.22. No binding capacity constraints exist that would prevent independent PSPs from expanding their output sufficiently to keep payphone markets competitive.

[13] For instance, management of Amnex has stated their intent to grow from 7,700 payphones owned today to 40,000 owned payphones over a 4 year period. Peoples Telephone operates approximately 40,000 payphones in over 40 states.

[14] To the extent that such behavior did occur, PSPs would not earn above-normal profits since the location owner would capture all such profits through its agreement with the PSP.

charge above competitive market prices. Furthermore, there is no evidence that such monopoly pricing has occurred to date in payphones at locations such as airports.[15]

B. The Commission Estimated the Differences in Marginal Cost between the Competitive Service and the Regulated Service

23. The Commission estimated the net difference in costs between the competitive local coin rate and the regulated dial-around and subscriber 800 calls in its last decision. The Commission set the conceptual framework for the estimation in the correct manner. First, both positive and negative difference in costs between the competitive service and the regulated service were recognized so that the net avoided cost methodology was used. Also, the Commission attempted to measure the difference in costs for a marginal payphone location, so that the framework of equation (1) and equation (3) was utilized. While I have pointed out in my Declaration, filed Dec. 1, 1997, that certain adjustments to the Commission's actual calculation need to be made (¶¶ 13-19), the conceptual framework used by the Commission will lead to the correct economic calculation of the regulated price.

C. The Same Facility Provides Both Local Coin Calls and Regulated Calls

24. Both competitive local coin rate calls and regulated dial-around and subscriber 800 calls use a common facility most of whose costs are fixed. Indeed, as the Commission has recognized (e.g., Second Report and Order ¶ 108), the largest proportion of overall costs for PSPs are fixed and shared and common costs. Thus, the use of the markup for the fixed costs determined by the outcome of the competitive market will provide a correct estimate for the regulated rate under an avoided cost approach.

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[15] Since the regulated dial-around and subscriber 800 rate is based on the coin call price, a PSP cannot increase the subscriber 800 rate because of the consumer's indifference to the rate to be paid. Thus, the competitive outcome of local coin prices guards against the potential exercise of market power in subscriber 800 calls.